

The experience of Sweden and Spain related to the use of e-prescription

(Doświadczenia Szwecji i Hiszpanii związane ze stosowaniem e-recepty)

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Abstract – The experiences of Sweden and Spain were presented here related to the use of e-prescriptions. The rationale for the choice is that the solution used in Sweden is considered one of the best. The Spanish proposal, in turn, is the closest to the one to be used in Poland. Qualifications of their members do not affect the final outcome.

Key words - Sweden, Spain, e-prescriptions.

Streszczenie – Przedstawiono doświadczenia Szwecji i Hiszpanii związane ze stosowaniem e-recepty. Uzasadnieniem wyboru jest fakt, że rozwiązanie stosowane w Szwecji uznawane jest za jedno z najlepszych. Propozycja hiszpańska, jest z kolei najbardziej zbliżona do tej, jaka ma funkcjonować w Polsce.

Słowa kluczowe – Szwecja, Hiszpania, e-recepty.

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- A. The idea and the planning of the study
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- C. The data analysis and interpretation
- D. Writing the article
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I. INTRODUCTION

In these countries, like Sweden and Spain, and United States, the process of implementation of the system has already been completed or still in progress, but it is at a very advanced level. Presentation of the experience of selected countries is aimed at minimizing the number of errors that could be committed in the implementation of the e-prescription in our country and familiarization with some good practices that may also apply in Poland.

It is worth noting that the solution used in Sweden is considered one of the best. The Spanish proposal is the closest to that which is to operate in Poland.

II. ELECTRONIC RECIPE IN SWEDEN

The Swedish healthcare system is located on three levels: national, provincial and municipal. At the national level, the Ministry of Health and Social Services operates as part of a government that oversees health care and social services. It is a government advisory body. Responsibility for providing health care services is directed to 19 District Councils and 2 regions - in total up to 21 units and up to

290 municipalities. There are 7 university and 70 poviast hospitals in Sweden [1].

In 2001, in Stockholm, work began on the introduction of the electronic prescription system, and three years later it was fully operational. It is worth noting that this was due to the high degree of computerization of centers providing health services in Sweden [2]. Focusing on the example of the e-prescription operating in Stockholm, it should be noted that the introduction of this solution was based on close cooperation between Stockholm County Council and Apoteket AB, a state-owned pharmacy network that had an exclusive marketing right by 2010. medicines in Sweden. In order for the system to function well, it is not enough to just the right technological solution. It is also necessary to pay attention to the appropriate implementation process so that it takes into account the needs and expectations of users. The Swedish strategy was built on the cooperation of the local health care system and pharmacies. The success of the e-prescription in Sweden can be attributed to the presence of national electronic prescription databases and an organized implementation strategy, which has been widely tested in Stockholm County and then introduced in other parts of the country. The creation of a central server was possible due to the fact that at that time the pharmacies were connected to a network that had a monopoly on the sale of medicines [3]. The basis for the success of this solution was the creation of a dedicated Sjunet network, gradual implementation of the system in subsequent cities, cooperation of all health care entities and conducting campaigns to make citizens aware of what an e-prescription is and to train doctors for the proper display of e-prescriptions . The Swedish electronic prescription system is considered one of the best systems operating in European countries [2].

Sjunet is the most common way to send electronic prescriptions between a doctor and a pharmacy in Sweden. It is a dedicated telecommunications network, to which most hospitals, primary health care centers and pharmacies are connected. Sjunet is a system operating in disconnection from the Internet. It provides secure communication and the transfer of patient data through technology that ensures that information flowing through the network is not available and transmitted via the public Internet. Sjunet is constantly developing, taking into account new services and capabilities that will allow you to connect even more recipients [1]. Sweden is one of the countries where e-prescriptions are widely used. It is estimated that 95% of all prescriptions - are those issued in electronic form [2]. The e-prescription is generated by doctors via the electronic prescription prescription system. Then, it is sent in real time via a secure network to the national e-prescription

database. The patient can also indicate the pharmacy in which he wants to pick up the medicines, then the recipe is sent directly to this facility. The pharmacist, after coming to the pharmacy, checks his identity and issues previously prepared medicines. If the patient does not indicate the pharmacy, then the prescription is sent to the server and the patient can choose medicines at any time and in any pharmacy in Sweden. Only those entitled to display it and pharmacists have access to the prescription [3].

Thanks to the e-prescription, the pharmacist can see in the catalog which medicines the patient has previously used. This makes it possible to determine possible contraindications to the use of certain preparations together [2].

Among the main advantages of using the e-prescription in Sweden can be mentioned [4] :

- increase in the safety and quality of prescriptions issued, because the information chain between the person authorized to issue a prescription and the pharmacy is intact,
- reducing the likelihood of giving the wrong medicine, because the e-prescription is clear and legible,
- better patient service and time saving for all participants of the health care system. Time saved on writing prescriptions can be devoted to the patient,
- uni children's reach to duplicate prescriptions.

An important element of the introduction of the e-prescription was the creation of a common administration platform that allows maintaining order in the system [3].

D 1 on the figures, it will present the flow of e-prescribing system Sjunet.

III. ELECTRONIC RECIPE IN SPAIN

Spain is divided into 17 autonomous regions, which makes the health system highly decentralized. Since 2002, responsibility for the organization of health care has been delegated from the central level to regional authorities. Healthcare in Spain is widespread and financed from public funds. Private health insurance is not popular. Prescription drugs are reimbursed in 60%, and after reaching the age of 65 in 100%. For medication received during closed treatment, the patient does not bear any fees [5].

Spain is one of the countries where the electronic prescription works, but not to the full extent. Due to the fact that the state is divided into regions, this solution is implemented in selected places in Spain. Each region has its own e-prescription system, but all operate on similar principles. However, it works best in the area of Andalusia. During one visit, the doctor may prescribe medications and / or

medical devices to the patient in the amount that will be needed for the given treatment.

There is only one restriction here - namely, the doctor can write out drugs for a maximum of one year of use. The patient can purchase medicines at any pharmacy, which was included in the system, upon presentation of a health insurance card. A prescription can be implemented in whole or in part. In Spain, work is continuing on the creation of a system that will operate in full compliance with existing systems in different regions. The Ministry of Health, operating at the central level, will help in the implementation of this project [6].

As mentioned earlier, the e-Prescription works best in the area of Andalusia, which is why it will be described in the next part how the prescriptions are written and processed in this part of Spain.

The Receta XXI system operating there is connected to Diraya, a local system that provides health information for each patient. The system includes primary health care centers, specialist clinics, ambulance and private clinics [7]. Receta XXI facilitates writing, dispensing and control of drugs, and thanks to the connection with Diraya - supports the compilation of medical history in an electronic patient record [8]. The Electronic Patient Record (EHR) is the basis for the functioning of the e-Prescription. Despite the

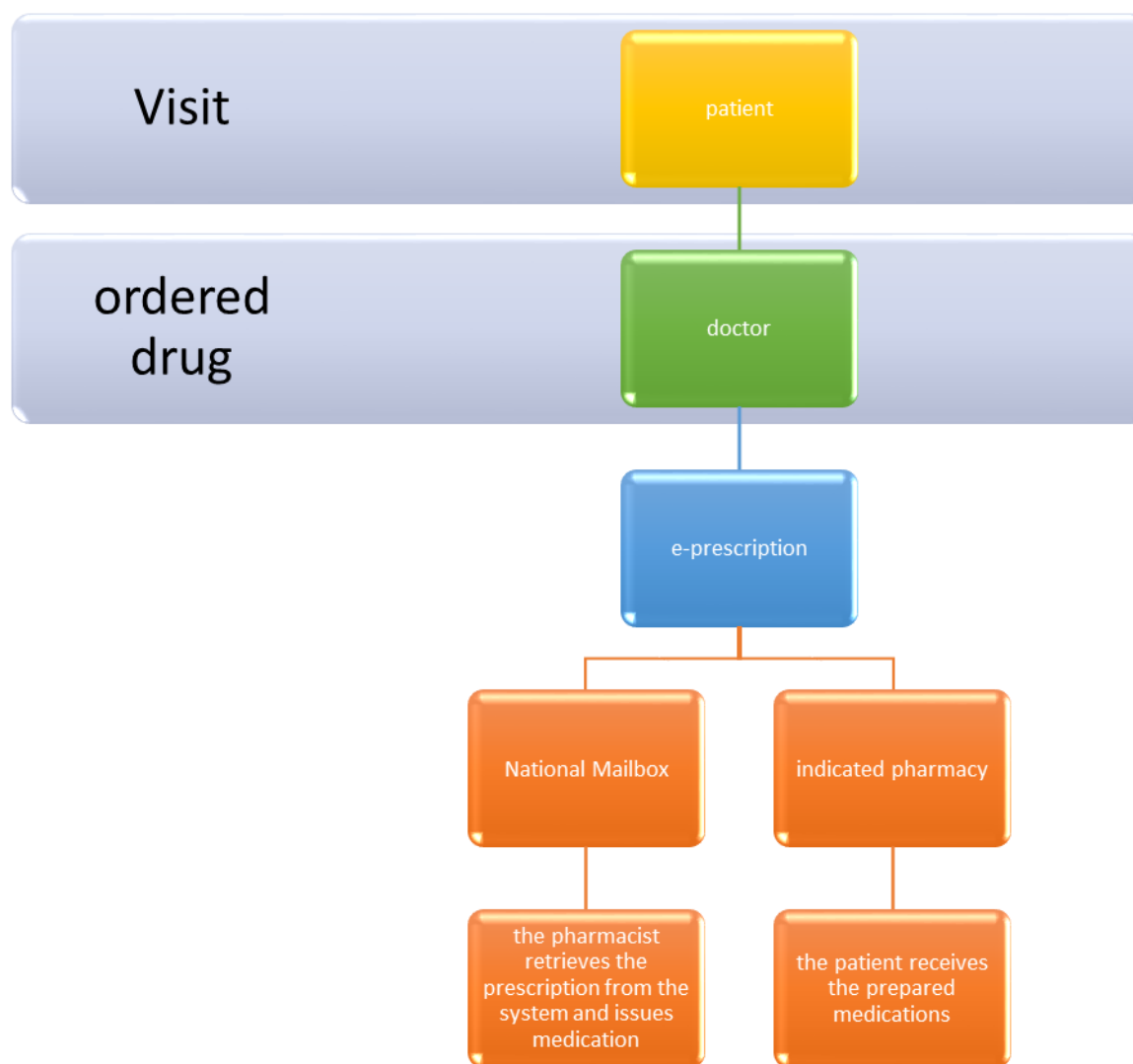


Figure 1 E-receipt flow in the Sjunet system [for own work]

differences in medical records in individual regions, it is closely related to this system.

The patient, after coming to the doctor must show the health insurance card, which allows access to the database and confirms the patient's identity. On this basis, the doctor can write a prescription. When prescribing medications and / or medicinal products, the physician uses the EHR for the region. Drug prescription is based on the electronic dictionary of medicines and medicinal products. It is updated monthly by the Ministry of Health and Social Policy (MoH), and thanks to healthcare in Andalusia (SAS) - included in the Receta XXI system.

The dictionary contains information about [8] :

- the defined daily dose of the medicine (DDD),
- DDD per unit,
- the impact and value of the drug,
- medical guidelines published by the Spanish family association and environmental medicine (CEMFYC)
- drug lists that require a clinical report to issue them.

The issued prescription is placed in the central system, and information about the stored medicines goes to the Diray system. Each recipe has its own unique code that allows its identification. The patient can buy medicines at any pharmacy that belongs to the e-Prescription network. Each pharmacist must have a card identifying the pharmacy, which is a confirmation that the institution can carry out the prescriptions in electronic form. Also at this stage you need a health insurance card. The patient must present it in the pharmacy so that the pharmacist can gain access to the system [6]. It is also worth noting that the Receta XXI system in practice distinguishes between three different ways of prescribing. The first of these is the manual prescription prescription - this is the solution used by general practitioners and paediatricians during home visits. After returning to the POZ, they enter data into the Diray system. Specialist doctors and ambulance doctors are the groups that most often use this option. The second option is electronic prescribing. Details of the prescription are entered into the system, the prescription is printed and passed on to the patient who goes to the pharmacy to carry it out. All doctors can prescribe medication in this way. Decision support system (DDS) tools are available to them and the Diray system records data in the EHR. ePrescribing (Receta XXI) is the third way. After the doctor has entered the information about the prescribed medicines into the Receta XXI system, he clicks in the place marked with a box and the prescription is sent to the central system. Pharmacists have access to the prescription placed

there . This function is used only by primary care physicians. If patients wish, they can receive a printout with details of the dosage, frequency of drug use, etc. Information related to medicines prescribed with Receta XXI is also placed by the Diray system in the EHR. Patients have the right to view records in the Receta XXI system. They can do it on request and receive a printout from the system or see all the information when visiting a doctor or pharmacist. Ultimately, the assumption is that every patient has access to the system from their own home. In the event of a system failure, the physician can write out a traditional prescription and enter data into the Diray system after removing the defect [8].

Improving quality is 26% of all the benefits of the e-prescription system in Andalusia. The main point is to improve patient safety by reducing the occurrence of side effects that pharmacists can check, thanks to access to the list of medicines used by the patient and special protocols. Many people with chronic diseases came to the doctor only to get a prescription for medicines that have been used for years. Now it is not necessary. The introduction of an e-prescription meant that both doctors and patients could save valuable time. Lessons from the implementation of the Receta XXI system have only confirmed that further work and investments in the eHealth strategy are necessary [8]. Thanks to the pilot e-Prescription programs, which covered individual regions of Spain, it was possible to extend them to other areas, eliminating errors previously created. The fact that the platform was built in such a way that it can successfully operate with other e-Health platforms [6] contributed to the success of the e-Reception implementation . At the same time, it should be remembered that the Receta XXI system only works in the area of Andalusia. Therefore, in the case of transfer to another region of Spain, you should inform your doctor, because receiving such a message will issue a traditional prescription, which can be implemented anywhere in the country [9]. Figure 2 shows how recipes are issued and processed in the Receta XXI system.

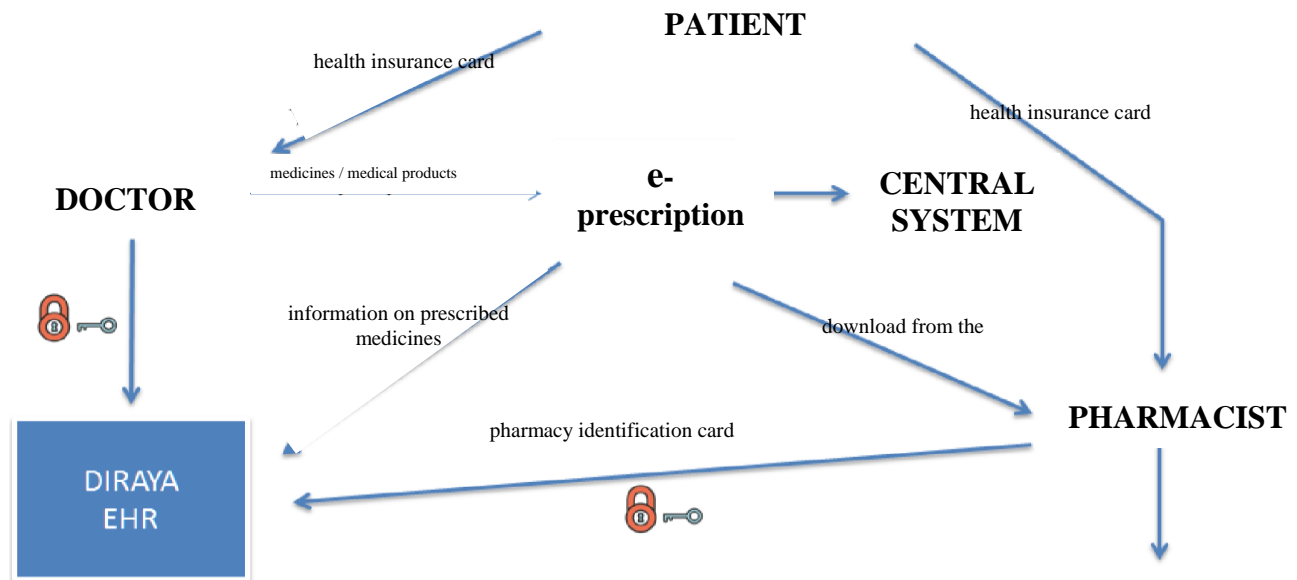


Figure 2 . Diagram of issuing and processing prescriptions in the Receta XXI system [own elaboration]

Explanation:

The padlocks in the diagram mean that all participants in the health care system must have appropriate keys to access the individual components of the Receta XXI system.

VI. REFERENCES

- [1] Landberg C, Tellinger K, Patel T. Study on Economic Impact of eHealth: Developing an evidence-based context-adaptive method of evaluation for eHealth. Information Society and Media. [online] [cited 2018 Mar 17] Available from: URL: http://www.ehealth-im-pact.org/case_tool/data/binary/d9448cc8ce8d4b44ab01f211908dd02f.pdf
- [2] Marta B. Doświadczenia europejskie we wdrażaniu e-Recepty. [online] [cited 2018 Feb 2] Available from: URL: <https://prezi.com/ae8gltyq5xt/doswiadczenia-ue/>
- [3] Zetterman I. e-prescriptions in Sweden. Vårdgivarguiden Stockholms Läns Landsting. [online] [cited 2018 Feb 2] Available from: URL: <http://www.vardgivarguiden.se/Omraden/E-tjanster-och-system/-e-tjanster-och-system/Beslutsstod/E-recept/e-prescriptions-in-Sweden/>
- [4] Raport. Descriptive report on site study results: Apoteket and Stockholm County Council, Sweden: eRecept, an ePrescribing application. DG INFSO. [online] [cited 2018 Feb 2] Available from: URL: http://www.ehealth-impact.org/case_studies/documents/ehealth-impact-7-2.pdf
- [5] Dąbrowski J, Darowski P. System ochrony zdrowia w Hiszpanii. [W:] Kalecińska J, Herbst I.(red.) PPP w systemach ochrony zdrowia w wybranych krajach świata. Warszawa; Centrum Partnerstwa Publiczno-Prywatnego, 2011: 39-44.
- [6] Konkurs na opracowanie koncepcji wykonania prototypu usługi elektronicznej recepty e-Recepta i jego wdrożenia – praca konkursowa. [online] [cited 2018 Feb 2] Available from: URL: http://www.csioz.gov.pl/src/files/konkurs_na_opracowanie_koncepcji_wykonania_prototypu_e-recepta.pdf, [cytowany 2 kwietnia 2015]
- [7] Junta de Andalucía. Consejería de Salud. Healthy Andalusia, Sevilla. [online] [cited 2018 Feb 2] Available from: URL: http://www.juntadeandalucia.es/salud/export/sites/csaud/galerias/documentos/c_1_c_7_healthy_andalusia/healthy_andalusia_new.pdf
- [8] Vatter Y, Jones T, Dobrev A. Report on The socio-economic impact of Receta XXI, the regional ePrescribing system of Andalucía's public health service, Spain. European Commission, DG INFSO&Media. [online] [cited 2018 Feb 2] Available from: URL: http://www.ehr-im-pact.eu/cases/documents/EHRI_case5_RecetaXXI_Andalusia.pdf
- [9] Receta electrónica. Preguntas y respuestas más frecuentes. Servicio Andaluz de Salud. Junta de Andalucía. [online] [cited 2018 Feb 2] Available from: URL: [Adres:http://www.juntadeandalucia.es/servicioandaluzdesalud/principal/documentosacc.asp?pagina=gr_farmacia_2_1](http://www.juntadeandalucia.es/servicioandaluzdesalud/principal/documentosacc.asp?pagina=gr_farmacia_2_1)